



Identifying the drivers of freight's future

In 2017-18, Deakin University's Centre for Supply Chain and Logistics studied future supply chain trends through a scenario planning exercise. This involved:

- identifying potential drivers of change in Australia's freight and supply chains
- using these drivers to develop four potential scenarios with a time horizon of 20 years
- conducting workshops with experts from industry, government and academia to understand the implications of these scenarios

The key drivers of change over the next 20 years



Changing consumer preferences



Global economic shifts



Technology



Sustainability concerns



Emerging security challenges



Changing Consumer Preferences

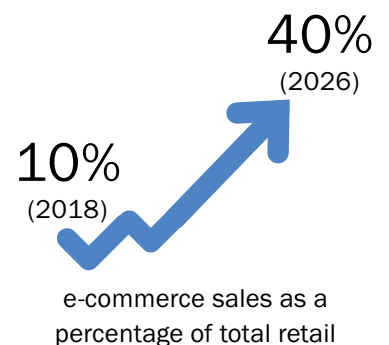
Global e-commerce sales as a percentage of total retail is growing significantly

In 2040, online grocery shopping and delivery is likely to be the norm. What will consumers expect?

- Round-the-clock, on-demand delivery
- Quality
- Environmental, social and ethical impacts of products
- Transparent supply chains

What will this mean for industry and governments?

- New approaches to urban planning, design and mobility
- Innovations in first- and last-mile deliveries, distribution and collection
- Improved visibility and information flow along supply chains supported by global standards, interoperability and data sharing



Global economic shifts

Global economic activity is continuing to shift east towards the Indo-Pacific region

Australia is well-positioned to take advantage of new markets for trade and investment through its current and future free trade agreements.

Freight will be a critical enabler of global trade flows and our competitiveness in the global marketplace.



What will this mean for industry and governments?

- Shifts towards specialized advanced manufacturing
- Increase freight efficiency to enable Australian businesses to compete in global supply chains
- Focus on the integrity and resilience of Australian businesses within global supply chains
- Adaptability to changing export expectations and costs will be key



Over a billion people in Asia are entering a growing middle class



Technology

Greater take up of new technologies in freight and supply chain networks sector could have many benefits

- Increased network efficiency
- Decreased risks to transport users
- Reduced fuel use and emissions
- Enhanced traceability



BUT there could be unintended consequences, like:

- Increased congestion
- More emissions
- Greater safety and security risks

What can governments do to build an enabling environment?

- Develop innovation-friendly regulation to provide industry with the flexibility to trial and adopt beneficial technologies safely
- Develop and adopting technology standards
- Build public trust
- Provide enabling infrastructure where appropriate
- Work with industry to build a sustainable workforce to meet changing skills needs

Sustainability concerns

We know our freight networks and assets are vulnerable to increasing catastrophic weather events, such as extreme temperatures or rainfall



Despite knowing many climate and natural hazards are intensifying, we lack sufficient understanding of the risks and their potential consequences.

Case Study – National Disaster Risk Reduction Framework

The intensity and frequency of climate related risks make our supply chains vulnerable to disruption. To better understand our vulnerability and how we can build our resilience to risks, the Australian Government is undertaking a one-year pilot to understand how our freight networks are vulnerable to climate related disruptions.

The pilot project uses Australia's freight networks as a case study to identify gaps in our current data and activities that prevent us from being able to predict, respond to and prevent climate-related disruption.

The pilot involves participants from across governments, industry and academia. Following the completion of the pilot, participants will have an improved and shared understanding of the information and tools necessary to assess climate and disaster risk, and will feed into broader activity to help Australian businesses and communities prepare for the challenges posed by new climate risks.

What is the freight sector's role in climate adaptation?

- Making adaptable supply chains and freight networks
- Building resiliency into our networks and new infrastructure
- Exploring how different climate scenarios will effect freight-reliant industries over the long-term so governments and industry can appropriately plan

What is the freight sector's role in climate mitigation?

- Improving fuel efficiency may deliver significant reductions
- Adopting alternative fuel sources
- Mode shifting
- Adjusting supply chain and business practices

The transport sector is currently the second largest source of greenhouse gas emissions in Australia.

It will continue to be a key driver of emissions to 2030 due to transport activity linked to population and economic growth.

Across non-road freight modes, emissions are projected to grow out to 2030, with most growth occurring in the domestic aviation sector.



Emerging security challenges

The global environment is constantly changing and risks are evolving. These can take the form of terrorism and armed conflict, cyber-attacks, disinformation campaigns and biosecurity breaches.

As new and sophisticated threats emerge, we are adapting our security framework to meet these challenges by:

- Building cyber resilience of our digital systems and infrastructure
- Ensuring our regulations and compliance systems are adaptable to changing threats
- Identifying and managing physical threats to our freight networks



Australia relies on liquid fuel imports, with 91% of transport fuel imported



The security of data collected from new technologies, such as connected and automated vehicles, is critical



Australia's agricultural sector and natural environment vulnerability to exotic pests and diseases

Case Study – Liquid Fuel Security Review

The Australian Government is undertaking a review of Australia's liquid fuel security. The review is an in-depth look at the liquid fuel sector that tests the resilience of the supply of liquid fuels to all sectors of Australian society, economy and security in foreseeable and credible scenarios.

The review will consider the use and supply of liquid fuel in Australia, now and into the future, and our resilience to liquid fuel related disruptions. The review will also consider the high demand that freight has for diesel and fuel pricing.

The Government has key areas of work under way to understand reliability of supply, affordability and resilience. These activities are:

- Understanding demand across different fuel types and users
- Mapping liquid fuel supply, including international imports, domestic production, refineries, storage capacity and disruption
- Cost-benefit analysis of the economic impacts of disruptions and the associated costs of measures to insure against these events
- Testing the system to see how well we would manage if there were disruptions
- Thinking to the future to understand emerging risks and how use of liquid fuels is evolving

This work will provide the Government information that it requires to make sound decisions on how to manage the risks in our liquid fuel market while still delivering affordable fuel to all Australians.

Responding to Emerging Challenges

The National Freight and Supply Chain Strategy will help position Australia to be adaptable to the range of potential futures through direct action by...

<p>Identifying and supporting digital infrastructure and communications services</p>	<ul style="list-style-type: none"> ● Upgrading positioning infrastructure ● Identifying barriers to 5G and Internet of Things uptake ● Exploring opportunities to apply new technology to manage transport networks
<p>Facilitating new and innovative technologies that improve freight outcomes and understanding deployment, skills and workforce requirements for operators and infrastructure</p>	<ul style="list-style-type: none"> ● The Austroads Connected and Automated Vehicle Program is helping establish the regulatory and operational frameworks needed to realise the benefits of these emerging technologies. ● The Australian Government's Advanced Train Management System pilot will provide significantly upgraded capabilities to Australia's rail industry ● The Queensland Government's Drone Network Impact Analysis ● All governments are considering alternative fuels that can power our future freight sector, including through the hydrogen for transport stream of the national hydrogen strategy.
<p>Adopting and implementing national and global standards and supporting common platforms</p>	<ul style="list-style-type: none"> ● The Australian Government's ongoing harmonisation of national vehicle safety standards for freight vehicles is allowing safer and more efficient vehicle technology to be introduced in Australia. ● The NSW Government is investigating the adoption of new technologies that can improve the productivity of the Port Botany supply chain.
<p>Improving regulation to be more outcomes focused and risk-based to support innovation and reduce regulatory burden whilst maintaining safety, security and sustainability</p>	<ul style="list-style-type: none"> ● The National Transport Commission's review of the Heavy Vehicle National Law will deliver a modern, outcomes focused law that will improve road safety, support increased productivity and innovation and simplify administration. ● The Australian Government's trade modernisation agenda is supporting businesses to engage and compete on a global scale by transforming and simplifying Australia's international supply chain.
<p>Promoting training and re-skilling of industry and government workforces appropriate to current and future needs</p>	<ul style="list-style-type: none"> ● The Australian Government's establishment of the Transport Sector Skills Strategy Taskforce to address skills and workforce constraints for the transport sector. ● The Queensland Government's Transport and Logistics Workforce Strategy and Action Plan. ● The ACT Government's Freight Skills Workforce. ● The Victorian and NSW Governments have initiated programs and activities to improve diversity in the freight industry.
<p>Developing an evidence-based view of key freight flows and supply chains and their comparative performance to drive improved government and industry decision-making, investment and operations</p>	<ul style="list-style-type: none"> ● The Australian Government's establishment of a National Freight Data Hub and work undertaking international benchmarking of supply chains ● CSIRO's continued development of the Transport Network Strategic Investment Tool (TraNSIT) is providing an advanced evidence base for industry and governments to make operational, investment and regulatory decisions from a local to national scale. ● Ongoing Strategy reviews will include continued scenario planning to future proof actions.